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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/782,149 | 02/14/2001 | Yung-Seop Lee | 3225-119 | 8329 |

26890 7590 06/07/2007
JAMES M. STOVER
NCR CORPORATION
1700 SOUTH PATTERSON BLVD, WHQ4
DAYTON, OH 45479

| EXAMINER | |
|---|---|
| CHOI, PETER H | |
| ART UNIT | PAPER NUMBER |
| 3623 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 06/07/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/782,149 | LEE, YUNG-SEOP | |
| | Examiner | Art Unit | |
| | Peter Choi | 3623 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. On March 28, 2007, the Board of Patent Appeals and Interferences handed down a decision that reversed the anticipation rejection of claims 1-3 and the obviousness rejections of claims 4-13 in application 09/782,149. The decision further entered a new ground of rejected for claims 1-13 under 35 USC § 101. Applicant has exercised the option to reopen prosecution. Claims 1-13 are currently pending. The following is a **NON-FINAL** action of pending claims 1-13, which have been examined on the merits discussed below.

### *Official Notice*

2. In the previous Office Action mailed January 11, 2005, notice was taken by the Examiner that certain subject matter is old and well known in the art. Per MPEP 2144.03(c), these statements are taken as admitted prior art because no traversal of this statement was made in the subsequent response. Specifically, it has been taken as prior art that:

- The concept of sorting data by a certain attribute is old and well known in the art
- It is old and well known in the art that computer spreadsheets can sort records according to any attribute by which the record is defined
- it is old and well known in the art that airlines keep extensive records of passengers, including a flight history (how often the customer flies, the

number of flights flown, and the destination and point of origin for each flight segment) and the revenue generated

- It is old and well known in the art that data analysis cannot be conducted until pertinent information has been obtained
- It is old and well known in the art that the number of groups used to sort records is subjective, depending on the size of the airline's customer database and their desired level of analysis
- it is old and well known in the art that evaluations and performance ratings are commonly made on a 1 to 100 scale.

***Response to Arguments***

3. Applicant's arguments filed April 30, 2007 have been fully considered but they are not persuasive.

Applicant argues that the claimed invention satisfies the requirements for an invention to be directed to a practical application of an abstract idea.

The Examiner respectfully disagrees. Further analysis is provided below regarding the requirements for a statutory invention under 35 USC § 101.

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-13 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Under the statutory requirement of 35 U.S.C. § 101, a claimed invention must produce a useful, concrete, and tangible result. For a claim to be useful, it must yield a result that is specific, substantial, and credible (MPEP § 2107). A concrete result is one that is substantially repeatable, i.e., it produces substantially the same result over and over again (*In re Swartz, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000)*). In order to be tangible, a claimed invention must set forth a practical application that generates a real-world result, i.e., the claim must be more than a mere abstraction (*Benson, 409 U.S. at 71-72, 175 USPQ at 676-77*). (Please refer to the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" for further explanation of the statutory requirement of 35 U.S.C. § 101.)

Regarding a useful result, the claimed invention does not yield a result that is specific, substantial, and credible. For example, the recitation of generic, unidentified variables (attributes) to generate a very specific result (e.g., identifying high value customers) is not deemed to be specific, substantial, and credible because the claimed invention does not convey the specifics of the attributes (e.g., what precise values are represented by these attributes, what specific attributes are used to evaluate the value of customers, etc.), thereby making it difficult to understand how a specific result based

on non-specific variables would be credible. If, however, the claimed invention defines theses attributes as very clearly defined elements, then one could reasonably assess that the identification of high value customers based on such customer-specific attributes is a result that can be specifically, substantially, and credibly be achieved.

Regarding a concrete result, one must assess if the claimed invention yields a result that is substantially repeatable, i.e., a result tat produces substantially the same result over and over again. The claimed invention lacks concreteness since the practice of the invention is solely dependent on subjectivity of a human user (who selects the customer record attributes used to assign evaluation scores), which varies from person to person. In other words, the outcome of the practice of the claimed invention is not substantially repeatable as different users practice the claimed invention, since the claimed invention is completely dependent on factors (customer record attributes) that could yield a significantly altered result every time the invention is repeated.

Regarding a tangible result, the claimed invention must set forth a practical application that generates a real-world result, i.e., the claim must be more than a mere abstraction. For example, evaluating a plurality of customer records and scoring said records based on a plurality of attribute values in order to identify high value customers per se are abstract because there is no real-world application of the evaluation/valuation process. However, if the identification of high value customers is used to decide whether or not said customers will be part of a company's marketing strategy (such as

receiving targeted offers), then the claimed invention yields a real-world, i.e., tangible, result. The claimed invention fails to produce a tangible result because the steps of the claimed invention could be limited to the mind of a human user. Until such steps are used to manifest some effect in the real-world, they constitute a mere abstract idea. If, however, in addition to these steps, the claimed invention recites a strategic plan for increasing the value of "low" value customers, or determining a new marketing strategy with customized targeted offers to specific customers (whether low or high value), then the claimed invention would be deemed to generate a real-world and tangible result.

Thus, there has been no transformation that yields a useful, concrete, and tangible result; therefore, the claimed invention is non-statutory and is abstract. Although it may be useful to identify high value customers for a business so that extra care can be taken to retain these customers, it is noted that this step is not recited in the rejected claim(s).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arthur Hughes' "Quick Profits with RFM Analysis" (previously provided and herein referred to as Hughes) in view of George Orme's "Contact Strategy: Segmenting Your Targets" (reference 2-X, herein referred to as Orme).

As per claim 1, Hughes teaches a computer implemented **(on a spreadsheet; Window's based RFM program called FRM for Windows)** [Paragraphs 13, 16] method of evaluating a plurality of customer records to identify high value customers, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the method comprising:

(a) first assigning a discretized attribute score **(code of 1,2,3,4, or 5)** for each of the attribute values [Paragraph 4];

(b) first sorting the plurality of customer records in to an order **(by most recent to most ancient)** based on the assigned discretized attribute scores associated with the first attribute **(recency)** [Paragraph 4];

(c) second sorting the plurality of customer records in to an order **(by most frequent to least frequent)** based on the assigned discretized attribute scores associated with the second attribute **(frequency)** [Paragraph 6];

(e) second assigning an evaluation score **(RFM cell code)** to each customer record which has been sorted [Paragraph 10]; and

(f) based on the evaluation score, identifying high value customers **(only 34 of the 125 cells did better than break even) {thus, members of the 34 profitable cells are of higher value than members of the 91 non-profitable cells}** [Paragraph 12].

Hughes does not explicitly teach

(d) third sorting the plurality of customer records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks.

However, Orme teaches the step of computing a revenue velocity indicator for each customer by dividing total dollars spent by a customer by time, say total months on file, to yield an aggregate measure of monetary value per occurrence and using said revenue velocity indicator to identify better candidates for more frequent contact [Paragraphs 5-6].

Both Hughes and Orme are directed towards customer segmentation based on customer transaction data; thus, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Hughes to include the step of ranking customers by an aggregate measure of revenue and frequency, such as revenue velocity, because doing so would enhance the ability of Hughes to rate

customers using collected customer transaction data by ranking said customers by providing an aggregate measure by which to evaluate customers in order to identify high value customers for targeted marketing offers.

As per claim 2, Hughes teaches the method of claim 1, wherein step (a) includes the steps of:

(i) breaking the plurality of customer records into a number of groups **(quintiles)** based on the attribute values **(recency, frequency, and monetary)** [Paragraphs 4,6, and 8]; and

(ii) for customer records of each group, assigning a discretized attribute score **(code of 5,4,3,2, or 1)** for the attribute values [Paragraph 4,6, and 8].

As per claim 3, Hughes teaches the method of claim 2, further including the step of sorting the plurality of customer records in the order based on the attribute values associated with one of at least the first attribute **(recency)** and the second attribute **(frequency)** [Paragraphs 4 and 6].

As per claim 4, Hughes fails to teach that the customer records should be broken into quartiles or that customer records of each quartile are assigned one of the scores of 1,2,3 and 4 for the attribute values associated with the one of at least the first attribute and the second attribute. However, Hughes teaches a method of breaking a plurality of records into quintiles instead of quartiles. For records of each quintile, one of the scores

1,2,3,4, and 5 are assigned for the attribute values associated with the one of at least the first attribute and the second attribute.

Hughes reinforces a well known concept in the art that the number of cells needed is a design choice that varies depending on the size of the database and the business' needs. Hughes also teaches that you want to have as many cells as possible so that you can more accurately predict customer response, but that having too many cells may result in each test cell failing to have enough data to be statistically valid [Paragraph 22]. An organization may change the number of cells into which the records are divided, depending on the number of customer records available, and to ensure that each cell is statistically valid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Hughes to divide the records into quartiles instead of quintiles because doing so enhances Hughes by providing enough cells to accurately predict customer behavior and minimizing the number of cells to ensure that each cell is statistically valid, which is a goal of RFM analysis as taught by Hughes [Paragraph 22].

As per claim 7, Hughes fails to explicitly disclose the process of reiteratively performing step (d) of claim 1 until customer records, which have the same assigned discretized attribute scores but different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks. However, Hughes teaches that a spreadsheet can be used to sort records into different RFM cells and

group them together with other records sharing the same two digit cell code **(meaning they have attribute values in the same quintile)** [Paragraphs 10 and 13].

The spreadsheet (embodied on a computer as software programs such as Microsoft Excel or Lotus 1-2-3) used to conduct the RFM analysis can also be used to sort records within the same RFM cell grouping. The spreadsheet software would perform step (d) once to sort records into RFM cell groupings, and once again within each RFM cell grouping to rank individual records by attribute value, if needed. The concept of sorting data by a certain attribute is old and well known in the art. It is old and well known in the art that computer spreadsheets can sort records according to any attribute by which the record is defined. Sorting the plurality of records would allow an airline to quickly reference, access, and retrieve data. Sorting customers into and within RFM cell groups may enable airlines to identify and prioritize key customers (for retention, targeted marketing promotions, etc). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Hughes to include sorting because doing so enhances the ability of Hughes to sort customers into different RFM cell groups, all cells will have virtually an identical number of customers, providing statistically valid information regarding the response rate of members in each cell, which influences which customers to focus marketing efforts on, a goal of RFM analysis as taught by Hughes [Paragraphs 10, 12].

As per claim 8, Hughes teaches the method of claim 7, further including the steps of fourth sorting the plurality of customer records in the order based on the attribute values associated with the first attribute **(to code for recency, the database is sorted by date)** [Paragraph 4].

As per claim 9, Hughes teaches the method of claim 8, further including the steps of fifth sorting the plurality of customer records in the order based on the attribute values associated with the second attribute **(to code for frequency, the database is sorted by most frequent to least frequent)** [Paragraph 6].

As per claim 10, Hughes teaches a computer implemented method of evaluating customers in the airline industry in a given period to identify high value customers, the method comprising:

(b) first assigning a discretized score **(code of 1,2,3,4 or 5)** for each of the associated values [Paragraph 4];

(c) first sorting the records in order based on the assigned discretized scores associated with the net revenue **(monetary value)** [Paragraph 8];

(d) second sorting the records in order based on the assigned discretized scores associated with the number of transactions **(frequency)** [Paragraph 6];

(f) second assigning an evaluation score **(RFM cell code)** to each record which has been sorted [Paragraph 10]; and

(g) based on the evaluation score, identifying high value customers **(only 34 of the 125 cells did better than break even) {thus, members of the 34 profitable cells are of higher value than members of the 91 non-profitable cells}** [Paragraph 12].

Hughes is not explicitly applied to customers in the airline industry; however, the generic analysis techniques taught by Hughes are applicable to any industry monitoring customer behavior by maintaining a customer database that includes purchase history [Paragraph 4].

Regarding claim 10(a), although not explicitly taught by Hughes, it is old and well known in the art that airlines keep extensive records of passengers, including a flight history (how often the customer flies, the number of flights flown, and the destination and point of origin for each flight segment) and the revenue generated. It is old and well known in the art that data analysis cannot be conducted until pertinent information has been obtained. This information could be found on an existing computer database maintained by the airline that could easily be accessed by a computer performing the analysis (imported as a data file, through a file transfer protocol, the Internet, etc). This would eliminate the need to re-enter data into a new database, or to copy data from one format to another (spreadsheet to database, database to spreadsheet, etc). Accessing a computer file to obtain customer information would eliminate these unnecessary steps. Therefore, it would have been obvious to one of ordinary skill in the art at the time of

invention to modify the teachings of Hughes to include a means of obtaining customer records to enable an analysis to be performed because doing so enhances the ability of Hughes to sort customers into different RFM cell groups based on readily available customer transaction data, with each cell having virtually an identical number of customers, providing statistically valid information regarding the response rate of members in each cell, which influences which customers to focus marketing efforts on, a goal of RFM analysis as taught by Hughes [Paragraphs 10, 12].

Hughes does not explicitly teach

(e) third sorting the plurality of customer records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks.

However, Orme teaches the step of computing a revenue velocity indicator for each customer by dividing total dollars spent by a customer by time, say total months on file, to yield an aggregate measure of monetary value per occurrence and using said revenue velocity indicator to identify better candidates for more frequent contact [Paragraphs 5-6].

Both Hughes and Orme are directed towards customer segmentation based on customer transaction data; thus, it would have been obvious to one of ordinary skill in

the art at the time of invention to modify the teachings of Hughes to include the step of ranking customers by an aggregate measure of revenue and frequency, such as revenue velocity, because doing so would enhance the ability of Hughes to rate customers using collected customer transaction data by ranking said customers by providing an aggregate measure by which to evaluate customers in order to identify high value customers for targeted marketing offers.

7. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Orme as applied to claim 1 above, and further in view of Powers et al. (U.S Patent #US 6,604,084B1).

As per claim 5, Hughes teaches the method of claim 1, wherein step (e) includes the steps of:

(i) splitting the customer records, which have been sorted, into a number of groups **(RFM cells)** [Paragraph 10];

Regarding claim 5(ii), the combined teachings of Hughes and Orme fails to explicitly disclose an assigned evaluation score to customer records of each group. However, Powers et al. teaches a performance evaluation system where a quality score is calculated for performance areas. [Column 11, line 63 – Column 12, line 20] Quality scores may be weighted based on importance [Column 12, line 66 – Column 13, line 24] and would provide another means of comparing customers and identifying key

customers. The quality score could also be used to evaluate and compare individual records and RFM cells.

Hughes, Orme and Powers et al. are all directed towards evaluating members in a group against the same set of criteria. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of the Hughes-Orme to include a means for calculating a quality score for records because doing so enhances the Hughes-Orme-Powers combination by performing consistent, objective evaluations of customers by evaluating members of a group against the same set of criteria to provide fairness and objectivity, which is a goal of Powers et al. [Column 2, lines 9-13].

As per claim 6, Hughes teaches the method of claim 1, wherein step (e) includes the steps of:

(i) splitting the customer records, which have been sorted, into a number of groups **(RFM cells)** [Paragraph 10].

Regarding claim 6(ii), the combined teachings of Hughes and Orme fails to explicitly teach a method where the customer records are sorted into 100 groups, where an evaluation score of between 1 and 100 are assigned for records of each group. However, Hughes discloses a method where the records are sorted into 125 groups **(RFM cells)** [Paragraph 10].

It is old and well known in the art that the number of groups used to sort records is subjective, depending on the size of the airline's customer database and their desired level of analysis. This is similar to the number of cells used to divide a plurality of records (as discussed earlier) and is merely a design choice of the individual airline conducting the analysis.

Powers et al. teaches a performance evaluation system where a quality score is calculated, but is silent regarding the range of quality scores. This performance evaluation system could be used to evaluate and compare individual records and RFM cells. Although the evaluation score range is arbitrary, it is old and well known in the art that evaluations and performance ratings are commonly made on a 1 to 100 scale. A quality score of records or RFM cells would provide another means of comparing customers and identifying key customers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hughes to include a means for calculating a quality score for records as taught by Powers et al. because doing so enhances the Hughes-Orme-Powers combination by performing consistent, objective evaluations of customers by evaluating members of a group against the same set of criteria to provide fairness and objectivity, which is a goal of Powers et al. [Column 2, lines 9-13].

8. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Orme, and further in view of the Database Marketing Institute's RFM for Windows® (previously provided and herein referred to as RFM for Windows).

As per claim 11, Hughes teaches a computer architecture for evaluating a plurality of customer records to identify high value customers, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer architecture comprising:

(a) first assigning a discretized attribute score **(code of 1,2,3,4 or 5)** for each of the associated attribute values; [Paragraph 4]

(b) first sorting the plurality of records in order **(from most recent to most ancient)** based on the assigned discretized attribute scores associated with the first attribute **(recency)**; [Paragraph 4]

(c) second sorting the plurality of records in order **(by most to least frequent)** based on the assigned discretized attribute scores associated with the second attribute **(frequency)**; [Paragraph 6]

(e) second assigning an evaluation score **(RFM cell code)** to each customer record which has been sorted [Paragraph 10]; and

(f) using the evaluation score to identify high value customers **(only 34 of the 125 cells did better than break even) {thus, members of the 34 profitable cells are of higher value than members of the 91 non-profitable cells}** [Paragraph 12]

Hughes does not explicitly teach

(d) third sorting the plurality of customer records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until customer records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks.

However, Orme teaches the step of computing a revenue velocity indicator for each customer by dividing total dollars spent by a customer by time, say total months on file, to yield an aggregate measure of monetary value per occurrence and using said revenue velocity indicator to identify better candidates for more frequent contact [Paragraphs 5-6].

Both Hughes and Orme are directed towards customer segmentation based on customer transaction data; thus, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Hughes to include the step of ranking customers by an aggregate measure of revenue and frequency, such as revenue velocity, because doing so would enhance the ability of Hughes to rate customers using collected customer transaction data by ranking said customers by providing an aggregate measure by which to evaluate customers in order to identify high value customers for targeted marketing offers.

Hughes and Orme are silent regarding a computer architecture for evaluating the plurality of records. However, RFM for Windows teaches a software, RFM for Windows® that performs the RFM analysis taught by Hughes. RFM for Windows® has codified means for performing the tasks required of an RFM analysis and therefore meets the limitation of this claim. Since it could automatically receive data from a file and perform an RFM analysis, use of this software would eliminate the need to manually process the records through a spreadsheet, and would automate the process of sorting records (both into and within RFM cells). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of the Hughes-Orme to incorporate the software of RFM for Windows to automate the process of conducting an RFM analysis.

Furthermore, it is well settled that it is not "invention" to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result. In re Venner, 120 USPQ 192. It was known at the time of the invention that merely providing an automated way to replace a well-known activity which accomplishes the same result is not sufficient to distinguish over the prior art. *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958).

As per claim 12, Hughes teaches a computer system for evaluating a plurality of customer records to identify high value customers, each customer record having at least

a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the computer system comprising:

first assigning a discretized attribute score **(code of 1,2,3,4 or 5)** for each of the attribute values; [Paragraph 4)

first sorting the plurality of customer records in order **(from most recent to most ancient)** based on the assigned discretized attribute scores associated with the first attribute **(recency)**; [Paragraph 4]

second sorting the plurality of customer records in order **(from most frequent to least frequent)** based on the assigned discretized attribute scores associated with the second attribute **(frequency)**; [Paragraph 6]

second assigning an evaluation score **(RFM cell code)** to each customer record which has been sorted [Paragraph 10]; and

based on the evaluation score, identifying high value customers **(only 34 of the 125 cells did better than break even) {thus, members of the 34 profitable cells are of higher value than members of the 91 non-profitable cells}** [Paragraph 12].

Hughes does not explicitly teach third sorting the plurality of customer records in to an order based on the attribute values associated with at least the first attribute and the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks.

However, Orme teaches the step of computing a revenue velocity indicator for each customer by dividing total dollars spent by a customer by time, say total months on file, to yield an aggregate measure of monetary value per occurrence and using said revenue velocity indicator to identify better candidates for more frequent contact [Paragraphs 5-6].

Both Hughes and Orme are directed towards customer segmentation based on customer transaction data; thus, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Hughes to include the step of ranking customers by an aggregate measure of revenue and frequency, such as revenue velocity, because doing so would enhance the ability of Hughes to rate customers using collected customer transaction data by ranking said customers by providing an aggregate measure by which to evaluate customers in order to identify high value customers for targeted marketing offers.

The Hughes-Orme combination is silent regarding a computer system for evaluating the plurality of records. However, RFM for Windows teaches a software, RFM for Windows® that performs the RFM analysis taught by Hughes. RFM for Windows® has codified means for performing the tasks required of an RFM analysis. RFM for Windows® discloses minimum hardware requirements for using the software. RFM for Windows® requires a computer system comprising of:

a **(80386)** processor; [Paragraph 20] and

a **(8 mb RAM)** memory coupled to the processor, the memory having stored therein sequences of instructions **(software)** [Paragraph 20], which, when executed by the processor, cause the processor to perform the steps of an RFM analysis as disclosed by Hughes.

RFM for Windows® has codified means for performing the tasks required of an RFM analysis and specifies the minimum hardware requirements for a computer system running the software, and therefore meets the limitation of this claim. Since it could automatically receive data from a file and perform an RFM analysis, use of this software would eliminate the need to manually process the records through a spreadsheet, and would automate the process of sorting records (both into and within RFM cells). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined teachings of the Hughes-Orme combination to incorporate the software of RFM for Windows to automate the process of conducting an RFM analysis.

Furthermore, it is well settled that it is not "invention" to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result. In re Venner, 120 USPQ 192. It was known at the time of the invention that merely providing an automated way to replace a well-known activity which accomplishes the same result is not sufficient to distinguish over the prior art. *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958).

As per claim 13, Hughes teaches an article, for use in evaluating a plurality of customer records to identify high value customers, each customer record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value, the article comprising:

first assigning a discretized attribute score **(code of 1,2,3,4, or 5)** for each of the attribute values [Paragraph 4];

first sorting the plurality of records in order **(from most frequent to most ancient)** based on the assigned discretized attribute scores associated with the first attribute **(recency)**; [Paragraph 4]

second sorting the plurality of records in order **(from most frequent to least frequent)** based on the assigned discretized attribute scores associated with the second attribute (frequency); [Paragraph 6]

second assigning an evaluation score **(RFM cell code)** to each record which has been sorted. [Paragraph 10]; and

based on the evaluation score, identifying high value customers **(only 34 of the 125 cells did better than break even) {thus, members of the 34 profitable cells are of higher value than members of the 91 non-profitable cells}** [Paragraph 12].

Hughes does not explicitly teach third sorting the plurality of customer records in to an order based on the attribute values associated with at least the first attribute and

the second attribute, until records, which have different attribute values associated with at least the first attribute or the second attribute, have been sorted to different ranks.

However, Orme teaches the step of computing a revenue velocity indicator for each customer by dividing total dollars spent by a customer by time, say total months on file, to yield an aggregate measure of monetary value per occurrence and using said revenue velocity indicator to identify better candidates for more frequent contact [Paragraphs 5-6].

Both Hughes and Orme are directed towards customer segmentation based on customer transaction data; thus, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Hughes to include the step of ranking customers by an aggregate measure of revenue and frequency, such as revenue velocity, because doing so would enhance the ability of Hughes to rate customers using collected customer transaction data by ranking said customers by providing an aggregate measure by which to evaluate customers in order to identify high value customers for targeted marketing offers.

The Hughes-Orme combination is silent regarding a sequence of machine readable instructions in machine readable form for use in evaluating a plurality of records, each record having at least a first attribute and a second attribute, each of the first attribute and the second attribute having an associated attribute value. However,

RFM for Windows teaches a sequence of machine readable instructions in machine readable form (software), RFM for Windows®, wherein execution of the instructions by one or more processors causes the one or more processors to perform the steps of an RFM analysis as taught by Hughes.

RFM for Windows® has codified means for performing the tasks required of an RFM analysis into a software program available to the public and therefore meets the limitation of this claim. Since it could automatically receive data from a file and perform an RFM analysis, use of this software would eliminate the need to manually process the records through a spreadsheet, and would automate the process of sorting records (both into and within RFM cells). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined teachings of the Hughes-Orme combination to incorporate the software of RFM for Windows to automate the process of conducting an RFM analysis.

Furthermore, it is well settled that it is not "invention" to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result. In re Venner, 120 USPQ 192. It was known at the time of the invention that merely providing an automated way to replace a well-known activity which accomplishes the same result is not sufficient to distinguish over the prior art. *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958).

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bibelnieks et al. (US Patent #6,567,786) teaches a system and method for increasing the efficiency of customer contact strategies. Customers are analyzed based upon historical criteria and are grouped into segments of asset classes.

Cheng et al. (US Patent #7,152,039) teaches methods and systems for customer lifecycle definition and categorization. Customer transaction data is analyzed to ascertain which lifecycle stage a customer is in.

Chou et al. (US Patent #6,061,658) teaches a computer implemented method for prospective customer selection using customer and market reference data.

Jones et al. (US Patent #6,925,441 and WO 99/22328) teaches a system and method of targeted marketing. Customer transaction data is analyzed to arrive at a market score, which affects the targeting marketing strategy of a company.

Glover et al. (USPGPub 20020042742) teaches a customer award and incentive system that analyzes customer purchasing activities and aggregating customers into larger lots.

Samra et al. (US Patents #7,010,495, 7,006,979, and 7,003,476) teach methods and systems for defining targeting marketing campaigns using historical customer transaction data to segment customers into segments for targeted marketing campaigns.

Anderson et al. (US Patent #5,974,396) teaches a method and system for gathering and analyzing consumer purchasing information based on product and consumer clustering relationships. Based on consumer purchasing information, consumers are clustered into segments.

Janny Hoekstra and Peter Leeflang's "The Customer Concept: The Basis for a New Marketing Paradigm", (reference 1-U), published in 1999, teaches the use of customers as the basis for a new marketing paradigm.

Andrew Frawley and Kurt Thearling's "Increasing Customer Value by Integrating Data Mining and Campaign Management Software", (reference 1-V), published in February 1999, teaches the use of data mining to score customers and develop customer segments in order to increase customer value by selecting the most appropriate prospects for a targeted marketing campaign.

Jungwhan Choi, Kevin Cooper, and Phil Hamner's "Identifying Target Customers", (reference 1-W), published in 1998, teaches that RFM analysis is widely employed to segment existing customers on the basis of their purchase history.

John Miglautsch's "Thoughts on RFM Scoring", (reference 1-X), published on May 22, 2000, teaches that RFM analysis is the cornerstone of direct marketing segmentation. Once customers are assigned RFM behavior scores, they can be grouped into segments and their subsequent profitability analyzed, which forms the basis for future customer contact frequency decisions.

Janny Hoekstra and Eelko Huizingh's "The Lifetime Value Concept in Customer-Based Marketing", (reference 2-U), published in 1999, teaches the modeling of customer lifetime value in customer based marketing.

Margaret Emmelhainz and Bruce Kavan's "Using Information as a Basis for Segmentation and Relationship Marketing: A Longitudinal Case Study of a Leading Financial Services Firm", (reference 2-V), published in August 1999, teaches the use of customer data in segmenting customers for the purposes of relationship marketing.

Arthur Hughes' "Boosting Response with RFM" (reference 2-W), published in May 1996, teaches the use of RFM analysis to identify ways to increase response rates of direct marketing campaigns.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Choi whose telephone number is (571) 272 6971. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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PC

May 24, 2007

TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600